

## **REMARKS**

Claims 1-19 are pending in the application. Claims 17-19 are new; support is found in paragraphs [0020]-[0022] on pages 9-11 of the original specification as filed, including Ohrbom et al., United States Patent 6,541,594, filed December 19, 2000 and issued April 1, 2003, which is incorporated by reference. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

### **1. REJECTION UNDER 35 U.S.C. § 102 – BOISSEAU**

Claims 1-3 and 7-16 stand rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Boisseau et al. (U.S. Pat. App. Pub. No. 2002/0155278) with "Reactive Polymers Fundamentals and Application A Concise Guide to Industrial Polymers", page 82 being cited as evidence. This rejection is respectfully traversed.

The present claims are not anticipated by Boisseau as the reference fails to teach a thermosetting coating composition that includes a monomeric material having a plurality of active hydrogen groups. What is more, the rejection is based on misinterpretations of Boisseau, the present application, and the general knowledge in the art. The present rejection also introduces and relies on the term "macromonomer," but this term is irrelevant to the present analysis as it appears nowhere in Boisseau or in the present application, and with all due respect, the Examiner's interpretation is an unreasonable contortion of "monomer," as used in the present application, Boisseau, and the art. The present rejection is further flawed by suggesting that Applicants' specification describes the claimed monomeric material as including oligomers as per

Boisseau, with reference to paragraph [0020], page 10, lines 4-5. Such reading of page 10, lines 4-5 is only possible by viewing the single sentence in total isolation, which fails to properly account for the reference to the addition reaction of fatty acids in the preceding sentence and the entire context of paragraph [0020] as well as paragraph [0021].

Independent claims 1, 13, and 16 include a thermosetting coating composition that includes a monomeric material having a plurality of active hydrogen groups. Present specification paragraphs [0012]-[0022], page 5, line 1 to page 11, line 17. In contrast, Boisseau only describes a film-forming component that is either polymeric or oligomeric. Boisseau paragraph [0048]. Definition of the terms “monomer,” “oligomer,” and “polymer,” as used in both the present application and Boisseau, and as generally understood in the art, are illustrated in Applicants’ Amendment filed September 18, 2008 on page 10, line 5 through page 12, line 2. In brief, monomers, oligomers, and polymers have distinct definitions. These terms are used independently, and the present specification, as well as Boisseau, differentiates between polymeric and oligomeric materials versus monomeric materials, with both the present specification and Boisseau providing exemplary embodiments of such species.

Applicants emphasize that the present claims are expressly drawn to at least one monomeric material and optionally include a polymeric or oligomeric material. It is clear and unambiguous from the claim language, including the specification and examples provided therein, that the claims must include a monomeric material having a plurality of active hydrogen groups. An oligomer or a polymer cannot substitute for the monomeric material. Indeed, the separate recitation of these features serves to identify to a person

of ordinary skill in the art that the monomeric material is different than the optional oligomeric material or polymeric material.

During patent examination, claims may only be interpreted as broadly as their terms reasonably allow. The operative word is *reasonably*, and it is unreasonable to interpret the claim terms in contravention to their accepted meanings in the art and their use in the present specification as well as their use in the art being applied. The Examiner's inference that the oligomers of Boisseau are "macromonomers" and somehow qualify as "monomers" is without merit. Notably, the term "macromonomer" is absent in Boisseau; however, in contradistinction Boisseau does explicitly illustrate how oligomers are formed from monomers. It is improper to import alternative meanings for claim terms where there is no ambiguity in the present specification, and where, as in this case, there is no ambiguity in interpreting the terms as used in Boisseau.

Perhaps most notably, there is no basis for interchangeability or equivalence of the claimed monomeric material and an oligomeric material, as disclosed by Boisseau. The Boisseau reference provides coating compositions and coating methods having a film-forming component (a). The Boisseau film-forming component (a) may be polymeric or oligomeric and will generally comprise one or more compounds or components having a number average molecular weight of from 900 to 1,000,000, for example. Boisseau paragraph [0048]. Examples of polymer resins are listed in Boisseau paragraph [0051]. The molecular weight of polymers refers to the number average molecular weight. Boisseau paragraph [0052]; *i.e.*, the number average molecular weight is the total weight of the sample divided by the number of molecules in

the sample, thereby averaging a mixed population of polymers formed of different numbers of repeating subunits.

Boisseau expressly discloses how to prepare polymers, for use as the film-forming component, from monomers. Boisseau paragraph [0054]; see also paragraphs [0063] to [0098] for preferred carbamate functional polymers, polyester polymers, and polyurethane polymers. Furthermore, the only reference to monomers in Boisseau is in terms of using them to prepare polymers for use as the film-forming component. Boisseau paragraphs [0052], [0054], and [0055]. The use and context of the terms polymer, oligomer, and monomer in Boisseau are in-line with the general understanding of these terms in the art, there is no overlap, and a person of ordinary skill in the coating arts recognizes that Boisseau is referring to different materials. Description of these materials and use of the associated terminology also comport with the extrinsic definitions of these terms.

In sum, Applicants note the distinct absence of any instance of the word “macromonomer” in Boisseau, and what is more, Applicants particularly note the separate and distinct uses of “monomer” and “oligomer” in Boisseau and the absence of any inference that these are one in the same material. Boisseau paragraphs [0052], [0054], and [0055].

The present rejection is further based on a systemic flaw by relying on a single sentence of Applicants’ specification taken in isolation. Instead of interpreting each and every claim feature in view of the whole of the specification, the rejection discounts the separate recitation of both “monomeric material” and “oligomeric material” within the claims and interprets “monomeric material” using the single sentence at page 10, lines

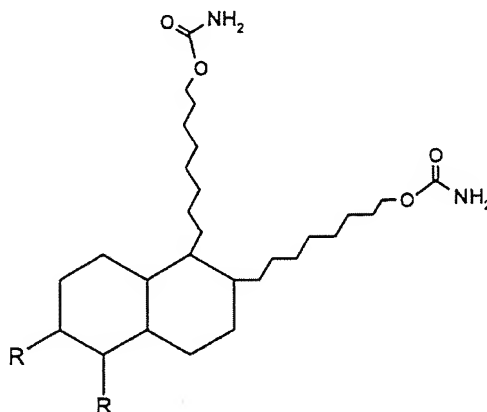
4-5 (paragraph [0020]), further taking this sentence out of context. Most notably, "oligomer products" is not referring to oligomers of the claimed monomeric material, and individual fatty acids do not have a plurality of active hydrogen groups, as does the presently claimed monomeric material; i.e., they are not monomers. Such addition reaction products therefore cannot constitute "oligomeric" variants of the claimed monomeric material or vice versa.

The claimed monomeric material does not embody (the separately recited) oligomeric material. Formation of the monomeric material from addition reaction of multiple fatty acids produces a monomeric material having a plurality of active hydrogen groups, where the acid groups can be converted to carbamate groups, for example. Present specification page 10, lines 5-6, and see structures on page 11. These structures are not a series of a few repeating units. Instead, the structures provide two to four radiating acid groups that are converted to carbamate groups, forming a monomeric material having a plurality of active hydrogen groups. In other words, there are no constitutional monomer units identifiable in such structures, as compared to oligomers illustrated in Boisseau, and the fatty acids each do not have a plurality of active hydrogen groups; i.e., individually they cannot be the claimed monomeric material.

For example, the present monomeric material may be a material as described in Ohrbom et al., U.S. patent 6,541,594. Page 9, line 14. The monomeric material includes a carbamate-functional material with at least two carbamate groups and a hydrocarbon moiety. Page 9, lines 17-22. The hydrocarbon moiety may include cycloaliphatic or aromatic structures. Page 9, lines 22-23. Such materials may be

prepared by addition reaction of unsaturated monofunctional fatty acids having 12 to 18 carbon atoms, followed by conversion of the acid group to a carbamate group. Page 9, line 23 to page 10, line 3. The “unsaturated fatty acids may be dimerized, trimerized, or tetramerized. Higher oligomer products are also possible, but not preferred.” Page 10, lines 3-5.

Thus, the quoted passage – “higher oligomer products are also possible, but not preferred” – is solely referring to the “oligomer products” of the unsaturated fatty acids reacted via addition reaction to cycloaliphatic or aromatic structures to form the monomeric material; i.e., the dimers, trimers, or tetramers in the preceding sentence. Exemplary structures of such materials are shown in paragraph [0021], page 11; and see Ohrbom et al., U.S. patent 6,541,594, as incorporated by reference, at col. 5, lines 34-45 and col. 6, line 44 to col. 8, line 25. These are not oligomers as described and provided by Boisseau, just as the decahydronaphthalene portion of:



is not reasonably considered a “hexane dimer.” Consequently, “oligomer products” as found at page 10, lines 4-5 is not used in reference to oligomers of the claimed monomeric material, but is referring to additions of the unsaturated fatty acids to the hydrocarbon moiety to form an exemplary monomeric material. As shown in the above

structure, the acid groups are converted to form a plurality of carbamate groups. Page 10, lines 5-15.

As such, the manner in which the Examiner is interpreting the quoted passage is in isolation and not in context with the remainder of the paragraph or the specification viewed as a whole. Individual fatty acids cannot constitute the presently claimed monomeric material having a plurality of active hydrogen groups, and addition reaction thereof does not result in an "oligomer" of the presently claimed monomeric material.

In conclusion, Boisseau cannot anticipate the present claims as the reference fails to teach all of the claimed features, most notably a thermosetting coating composition that includes a monomeric material having a plurality of active hydrogen groups. Reconsideration of the claims and withdrawal of the rejection are requested.

## **2. REJECTION UNDER 35 U.S.C. § 103 – BOISSEAU IN VIEW OF GREEN AND OHRBOM**

Claims 1-16 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Boisseau et al. (U.S. Pat. App. Pub. No. 2002/0155278) in view of Green et al. (U.S. Pat. No. 5,872,195) and Ohrbom et al. (U.S. Pat. No. 5,756,213) with "Reactive Polymers Fundamentals and Applications A Concise Guide to Industrial Polymers", page 82 being cited as evidence. This rejection is respectfully traversed.

As detailed in traverse of the 102 rejection above, the Boisseau reference fails to teach a coating composition having at least one monomeric material that has a plurality of active hydrogen groups. Addition of the Green and Ohrbom references fails to cure this deficiency. Since the combination must teach all of the claim limitations or provide an apparent reason to include the missing subject matter, the present claims are not

obvious. In particular, there is no apparent reason or basis in the combination of references to replace the film-forming component (i.e., the polymeric or oligomeric resin of Boisseau) with a monomeric material to make a coating composition with at least one monomeric material having a plurality of active hydrogen groups. These references do not appreciate use of the monomeric material as found in the present application.

With respect to Boisseau, the shortcomings of the reference are illustrated in the preceding section. Likewise, the rejection's basis for interpreting the oligomer of Boisseau as a "macromonomer" is irrelevant as this term appears nowhere in the art of record and the associated reasoning contravenes the separate recitation and use of "monomer" and "oligomer," as illustrated by the present application and the cited references. Finally, as illustrated above, reliance on page 10, lines 4-5 of the present specification as teaching that the claimed monomeric material is the same as an oligomer as disclosed in Boisseau is a systemic flaw in the preceding 102 rejection that is carried over to the present 103 rejection.

With respect to Ohrbom, the reference describes a compound (A) that has a carbamate or urea functionality where a compound (A)(1) having a carbamate or urea group and a hydroxyl group is reacted with a compound (A)(2) which may be a dialkyl carbonate, cyclic carbonate, or CO<sub>2</sub>. Reaction of (A)(1) with (A)(2) will result in a compound having the residues of two (or more) (A)(1) compounds linked together by a carbonate group formed from the residue of compound (A)(2). With inclusion of a polyol, a polycarbonate compound can be formed. Ohrbom col. 2, lines 19-34; see also col. 7, lines 52-67. Thus, at least two (A)(1) compounds are joined by an (A)(2) compound (i.e., at least two (A)(1) subunits/monomers are joined) and/or a



polycarbonate polymer is formed. As a result, Ohrbom does not disclose a non-polymeric coating composition having a monomeric material as described in the present invention.

With respect to Green, the reference discloses a curable coating composition having a polymer resin, curing agent, and a compound (c) having at least one carbamate group that is the reaction product of a hydroxyl group from a ring-opening reaction between an epoxy group and an organic acid group, and cyanic acid or a carbamate group. Green claim 1; abstract; col. 2, lines 1-11; and col. 5, lines 28-36. Thus, Green describes a polymeric coating composition where a polymer resin with active hydrogen-containing functional groups reacts with a curing agent. The Green polymeric coating composition further contains a carbamate compound (c) that contains at least one carbamate group, but the primary film-forming component of Green is the polymer resin, examples of which are listed in col. 2, lines 14-27.

The background of Green indicates that curable coating compositions utilizing carbamate-functional resins provide significant etch advantages. However, there is no suggestion or motivation that a skilled artisan would gather from the combination of Green, Boisseau, and Ohrbom that would lead to a coating composition having a monomeric material having a plurality of active hydrogen groups. In each reference (Green, Boisseau, and Ohrbom), the respective coating compositions contain a polymeric resin (Green), a film-forming component (Boisseau), or at least two of the same compound linked that can further include polycarbonates (Ohrbom), where each in turn reacts with a crosslinker.

In addition, compound (c) of the Green reference contains “at least one carbamate” group while the present invention describes a monomeric material having a “plurality of active hydrogen groups,” which can be carbamate groups. A “plurality of active hydrogen groups” in the present invention requires at least two such groups. See, for example, paragraph [0024] illustrating various embodiments of the monomeric material having two carbamate groups; and see paragraph [0017] describing embodiments of the monomeric material comprising “at least two functional groups.” The difference between having one carbamate group and two carbamate groups is important in the curing of a coating composition. For example, all three of the cited references contain other polymeric resins that react with a crosslinker to form a polymerized cured coating. In contrast, the present invention does not require a polymeric resin that reacts with a crosslinker.

The carbamate compound (c) from Green is further differentiated from the monomeric material of the present invention in that since compound (c) can have just one carbamate group, it would then react with a crosslinker at only the single carbamate moiety. As such, the cured coating composition in Green would be very different from the cured coating composition of the present invention where a non-polymeric coating composition having a monomeric material with a plurality (i.e., at least 2) of active hydrogen groups reacts with a crosslinker.

Thus, the present invention identifies and utilizes a specific species of carbamate containing compounds (e.g., monomeric materials having at least two carbamates) that are necessary for the present invention. A monomeric material having a single carbamate group would not function in a similar fashion and is not included in the

presently claimed invention. Therefore, the monomeric material having a plurality of active hydrogen groups would not have been obvious in the combination of the aforementioned references, since each of the references contains a separate polymeric resin which can react with a crosslinker to provide a polymerized and cured coating. Addition of a single carbamate containing compound (c) from the Green reference can react with a crosslinker, but cannot participate in the same type of curing reaction as can the monomeric material having a plurality of active hydrogen groups of the present invention.

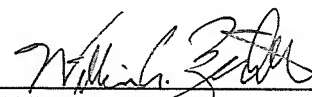
No reason or basis is identified as to why a skilled artisan would use a monomeric material with a plurality (at least two) of reactive hydrogen groups in a coating composition based on the cited references. The present invention is therefore not obvious. Withdrawal of the rejection and reconsideration of the claims are requested.

### 3. CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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